

Major Kang: File



**CORTEZ III SERVICE CORPORATION  
NASA/GODDARD SPACE FLIGHT CENTER  
CODE 239, BLDG 27  
GREENBELT, MD 20771  
FAX (301) 286-1774**

**DATE:** March 13, 2001 **#PAGES** (including cover sheet)

**TO:** Mr. Stanley R. Schneider

**AT:** \_\_\_\_\_

**PHONE (VOICE/FAX)** \_\_\_\_\_

**FROM: ODELL YOUNG, IMPORT/EXPORT SPECIALIST**

**PHONE: (301) 286-6388**

**EMAIL: oyoung@pop200.gsfc.nasa.gov**

**IF YOU DO NOT RECEIVE ALL TRANSMITTED SHEETS, PLEASE CALL**  
**(301) 286-6388**

**Comments:**

Dept. of State Case TAA 470-01

Mr. Schneider,  
Please review the attached case and advise if it is  
in accordance with your program requirements.  
Your reply by email within the next seven days  
will be appreciated.

ODELL



RLD

## DTC CASE REFERRAL DOCUMENT

ADMIN USE		DATE STAFFED MAR 8 2001		DTC CASE NUMBER TA 0470-01			
APPLICANT: Aerojet							
Advisory Opinion		<input checked="" type="checkbox"/> Agreement - [Mfg], [Tech Assist], [Distribution]		<input type="checkbox"/> Brokering Request			
DTC CASE OFFICER: LTC De Silva							
DTC Comments:							
Recommendations and Comments Are Requested From:							
<input checked="" type="checkbox"/>	DTRA/LD	<input type="checkbox"/>	NEA/RA	<input type="checkbox"/>	DRL/MLA	<input type="checkbox"/>	Transmittal Letter
<input checked="" type="checkbox"/>	NASA	<input type="checkbox"/>	EAP/RSP	<input type="checkbox"/>	OES	<input type="checkbox"/>	Attachments, stated on appl
<input type="checkbox"/>	ENERGY	<input type="checkbox"/>	EUR/RPM	<input type="checkbox"/>	PM/RSAT	<input type="checkbox"/>	Tech data/Descrip Literature
<input type="checkbox"/>	DOT/USCG	<input type="checkbox"/>	AF/RA	<input type="checkbox"/>	NP/CBM	<input type="checkbox"/>	Statement of Work
<input type="checkbox"/>	COMMERCE	<input type="checkbox"/>	WHA/PPCP	<input type="checkbox"/>	DTC/CEB	<input type="checkbox"/>	Order/Ltr of Intent/Contract
<input type="checkbox"/>	L/PM	<input type="checkbox"/>	SA/RA	<input type="checkbox"/>	DTC/	<input type="checkbox"/>	Copy of Agreement
<input type="checkbox"/>	PKRC	<input type="checkbox"/>	EUR/PRA	<input checked="" type="checkbox"/>	PM/ECNP	<input type="checkbox"/>	Copy of previous Approvals
							End Use Certificate/DSP-83
							Import Authorization
							Other (videocassette, etc.)
							Nothing
							# of Collated Sets

REPLY HERE AND RETURN TO DEPARTMENT OF STATE, OFFICE OF DEFENSE TRADE CONTROLS, WASHINGTON, D.C. 20520-0206. Recommendations within 25 working days of date staffed are appreciated. **PROVIDE COMMENTS FOR ANY RECOMMENDATION TO DENY OR RETURN WITHOUT ACTION (RWA).**

### RECOMMENDATION & COMMENTS:

<input type="checkbox"/>	APPROVE	<input type="checkbox"/>	APPROVE <u>WITH</u> PROVISIO	<input type="checkbox"/>	RWA	<input type="checkbox"/>	DENY
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### COMMENTS:

Typed/Printed NAME AND OFFICE SYMBOL

SIGNATURE

DATE: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

# **AEROJET**

## **COPY**

P O Box 296  
1100 West Hollyvale Street  
Azusa CA 91702

Tel: 626-812-1439  
Fax: 626-969-9010  
Carol.Brenson@Aerojet.com

23 February 2001  
1321:01:00900

Mr. William J. Lowell, Director  
Office of Defense Trade Controls  
U.S. Department of State  
1701 North Ft. Myer Drive, Room 228  
Arlington, Virginia 22209

Subject: **Proposed Technical Assistance Agreement between Aerojet and Thomas Keating Ltd of the United Kingdom (England)**

Applicant Code: 1204-1719

Munitions List Category: Technical Data/Category XV(f) related to Component/Category XV(e)

Reference: (a) NASA-GSFC Contract NAS5-01089  
Advanced Technology Microwave Sounder (ATMS)  
  
(b) DSP-5 Application, ODTCase Number 813422  
Offshore Porucement - G Diplexer, G Feedhorn, KAV Polarizing Grid,  
WG Polarizing Grid

Dear Mr. Lowell:

Submitted herewith are the original and eight copy-sets of this letter and a proposed Technical Assistance Agreement (TAA) between Aerojet-General Corporation (Aerojet) a subsidiary of GenCorp Inc., and Thomas Keating Ltd. in the United Kingdom. Included as part of this application package are draft statements of work, specifications and drawings for four millimeter wave antenna components (G Diplexer, G Feedhorn, KAV Polarizing Grid, and WG Polarizing Grid). Ultimately, components from Thomas Keating Ltd. *would be incorporated into deliverable hardware for the Reference (a) NASA program, Advanced Technology Microwave Sounder (ATMS).*

ATMS is the next generation satellite microwave instrument for use in weather forecasting and climate change research. This new instrument measures microwave energy emitted and scattered by the atmosphere. When combined with observations from an infrared sounder, ATMS will provide daily global atmospheric temperature, moisture, and pressure profiles. The first ATMS will fly on the National Polar-Orbiting Operational Environment Satellite System (NPOESS) Preparatory Project mission, a joint effort between NASA and the NPOESS program office. NPOESS is a tri-agency program, including NASA, NOAA and the U.S. Air Force.

Thomas Keating Ltd., an industry leader in the design and fabrication of millimeter wave radiometer antenna components, will use their existing engineering knowledge and fabrication techniques for the generation of development plans, design details, design analyses, development hardware, flight

**A GenCorp Company**

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hardware, and test results based on Aerojet's specific design requirements. In addition to providing the ATMS design criteria/requirements to Thomas Keating Ltd., technical discussions and interchanges will be required (i.e., design reviews, clarification and validation of specifications/requirements, trade and interface requirements, test results and analyses, quality assurance activities).

The Reference (b) application (case 813422) for the export of technical data sufficient to allow Thomas Keating Ltd. to provide cost estimates was previously submitted to ODTC, and is currently still in review. The enclosed proposed TAA is submitted to facilitate the additional discussions and interchanges that will be required, if Thomas Keating Ltd is selected as a vendor. Aerojet will not provide any manufacturing or materials technologies/assistance to Thomas Keating Ltd.

Technical exchanges/assistance may occur in the United Kingdom and/or the United States via in-plant visits, as well as via telephone, facsimile, mail, encrypted electronic mail, or courier service.

Any resultant Purchase Order(s)/Contract(s) with Thomas Keating Ltd will incorporate the TAA and well as provisions/limitations as delineated in 22 CFR 124.13(c).

The U.S. Munitions List (ML) Category for this TAA is Category XV(f), Technical Data, for a component (Radiometer instrument) / Category XV(e). Export of Significant Military Equipment is not involved.

In accordance with 22 CFR 124.12, the following information is provided:

- (a)(1) Aerojet's Munitions Control Registration Number is 1204-1719.
- (a)(2) The licensee is Thomas Keating Ltd located in Billingshurst West Sussex, England, United Kingdom. GenCorp Inc., who will provide support to its wholly-owned subsidiary Aerojet as needed, is included as a signatory to the TAA.

The scope of this Agreement entails the exchange of technical data to produce development plans, design details, design analyses, development hardware, flight hardware, and test results for millimeter wave radiometer antenna components, which ultimately could influence the design of the NASA ATMS instrument.

The Agreement will be valid until December 31, 2012.

- (a)(3) The technical data under this Agreement has/will be generated under the following U.S. Government contract:

Program Name:	Advanced Technology Microwave Sounder
Contract Number:	NAS5-01089
Agency:	NASA
	Goddard Space Flight Center
	Greenbelt, Maryland
	COTR: Sergey Krimchansky (301) 286-9843
	Contracts: Chris Whyte (301) 286-3230

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- (a)(4) Technical Data to be released/exported under this Agreement is UNCLASSIFIED.
- (a)(5) There are no patent applications nor is the technical data covered by an invention secrecy order issued by the U.S. Patent and Trademark Office.
- (a)(6) The value of the Agreement is currently estimated at \$450,000 (U.S. Dollars).
- This estimate provides \$275,000 for work being performed during the implementation phase, and \$175,000 for work being performed on customer executed options. There is no dollar value "income" to Aerojet; Thomas Keating Ltd is the vendor/supplier.
- 22 CFR 130 Certification: Neither the applicant nor its vendors have paid, or offered or agreed to pay, in respect of any sale for which a license or approval is requested, political contributions, fees or commissions in amounts as specified in 22 CFR 130.9(a).
- (a)(7) No foreign military sales credits or loan guarantees are involved in this Agreement.
- (a)(8) No classified information is to be released under this Agreement.
- (b)(1) If the Agreement is approved by the Department of State, such approval will not be construed by the applicant as passing on the legality of the Agreement from the standpoint of antitrust laws or other applicable statutes, nor will the applicant construe the Department's approval as constituting either approval or disapproval of any of the business terms and conditions between the parties of the Agreement.
- (b)(2) The applicant will not permit the proposed Agreement to enter into force until it has been approved by the Department of State.
- (b)(3) The applicant will furnish the Department of State with one copy of the signed Agreement (or amendment) within 30 days from the date that the Agreement is concluded and will inform the Department of its termination not less than 30 days prior to expiration and provide information on the continuation of foreign rights or flow of technical data to the foreign party. If a decision is made not to conclude the proposed Agreement, the applicant will so inform the Department within 60 days.
- (b)(4) If the Agreement grants any rights to sub-license, it will be amended to require that all sub-licensing arrangements incorporate all the provisions of the basic Agreement that refer to the U.S. Government and the Department of State (i.e. 22 CFR 124.9 and 124.10).
- Sub-licensing/subcontracting rights are not granted to the licensee under the current proposed agreement.

The following required ITAR provisions are located in the Agreement as follows:

- |          |                                       |
|----------|---------------------------------------|
| 124.7(1) | Page 1, Article I, and Attachment/SoW |
| 124.7(2) | Page 1, Article I, Attachment/SoW     |

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124.7(3)	Page 2, Article IV, Item 3.
124.7(4)	Page 2, Article IV, Item 4
124.8(1)	Page 2, Article V, Item 1
124.8(2)	Page 2, Article V, Item 2
124.8(3)	Page 2, Article V, Item 3
124.8(4)	Page 2, Article V, Item 4
124.8(5)	Page 2, Article V, Item 5
124.8(6)	Page 3, Article V, Item 6

No defense articles/hardware will be exported in furtherance of this Agreement. Only technical data and/or other defense services will be provided.

As stated previously, this Agreement relates to U.s. Munitions List categories XV(f) related to XV(e). These categories are not designated as Significant Military Equipment. (SME).

The certification required by CFR 22 126.13 is enclosed.

This request contains proprietary business information of Aerojet, which is privileged and company confidential, and shall not be used or disclosed for any purpose other than for official consideration of this communication unless written consent of Aerojet is obtained.

If additional information is required, please contact the undersigned at (626) 812-1439, telefax (626) 969-9010, or Chuck Abernethy, our Washington D.C. representative at (202) 828-6816.

A pre-addressed Federal Express airbill is enclosed to facilitate ODTC's response to this application.

Yours truly,



Carol Brenson  
Export Control Manager

Enclosures:

9 sets (one marked as "original") of:

- Transmittal Letter
- Agreement with Attachment/SoW
- Draft SoWs/Specifications for G Diplexer, G Feedhorn, KAV Polarizing Grid, WG Polarizing Grid

The following are contained only in the original set:

- Certification Letter (original plus one copy)
- Federal Express return airbill

**TECHNICAL ASSISTANCE AGREEMENT # (TBD)**

**between**

**AEROJET-GENERAL CORPORATION  
AZUSA, CALIFORNIA FACILITY  
1100 West Hollyvale Street  
Azusa, California 91702**

**as a subsidiary of**

**GENCORP INC.  
Highway 50 and Aerojet Road  
Rancho Cordova, California 95670**

**and**

**THOMAS KEATING LTD  
BILLINGSHURST WEST SUSSEX, ENGLAND,  
UNITED KINGDOM**

**for**

**MILLIMETER WAVE RADIOMETER ANTENNA  
COMPONENT DESIGN, ANALYSIS, AND FABRICATION**



## TECHNICAL ASSISTANCE AGREEMENT

This Agreement is entered into between Aerojet-General Corporation, through its facility at 1100 West Hollyvale Street, Azusa, California, United States of America (Aerojet), and Thomas Keating Ltd whose office is situated at Station Mills, Billingshurst West Sussex, England, United Kingdom. Also included as a signatory is GenCorp Inc., the parent company of Aerojet, having its principal place of business at Highway 50 and Aerojet Road, Rancho Cordova, California 95670, United States of America.

This agreement is effective upon the date of signature of the last party to sign the agreement after approval by the U.S. Department of State.

**WHEREAS**, Aerojet plans to engage in technical information interchange and may subcontract for purchasing of millimeterwave polarizing grids, RF diplexers, and a RF feedhorns with Thomas Keating Ltd for current and future contracts; and

**WHEREAS**, GenCorp will support its subsidiary Aerojet by participating in technical data exchange as needed;

**WHEREAS**, Thomas Keating Ltd, an industry leader in the design and fabrication of radiometer antenna component design, will use their existing design, analysis, and fabrication techniques and apply Aerojet's specific design requirements to produce design details and cost estimates, and potentially millimeterwave hardware products meeting Aerojet's needs.

**NOW, THEREFORE**, the parties desire to enter into the Technical Assistance Agreement as follows:

**ARTICLE I.** The Technical Assistance is to facilitate discussions and interchanges to include application scenarios, performance specifications, design constraints, environmental specifications, and system interface configurations/requirements for millimeterwave antenna components. Discussions/exchanges are to be sufficient for Thomas Keating Ltd to understand the Aerojet requirements and provide design recommendations as well as cost estimates, potentially resulting in procurement of hardware (from Thomas Keating Ltd).

See attached Statement of Work.

Technical exchanges (hard copy and/or oral exchanges) will occur in the United Kingdom and/or the United States via in-plant visits and meetings, video-conference, telephone, facsimile, mail, encrypted electronic mail, or courier service.

**ARTICLE II.** It is understood that this Technical Assistance Agreement is entered into as required under U.S. Government Regulations and as such, it is an independent agreement between the parties, the terms of which will prevail, notwithstanding any conflict or inconsistency that may be contained in other arrangements between the parties on the subject matter.

**ARTICLE III.** The parties agree to comply with all applicable sections of the International Traffic in Arms Regulations (ITAR) of the U.S. Department of State and that more particularly, in accordance with such regulations the following conditions apply to this agreement.



**ARTICLE IV.** In accordance with ITAR 22 CFR Section 124.7

1. Design/development/production of millimeterwave polarizing grids, RF diplexers, and RF feedhorns by Thomas Keating Ltd for use in various space applications.

There is no defense article/hardware to be provided to Thomas Keating Ltd. See also attached Statement of Work.

2. As per the attached Statement of Work, Aerojet will provide specific requirements (application scenarios, performance specifications, and system interface requirements/configurations) and discuss same to facilitate Thomas Keating Ltd efforts to provide millimeter wave antenna products that will meet Aerojet requirements.

No hardware or support equipment will be provided/exported to Thomas Keating Ltd. Only technical data will be provided.

3. The duration of the agreement is twelve (12) years after the effective date or TBD (date as may be stipulated by ODTC).
4. The technical data/services/assistance identified in this agreement is for export for use by Thomas Keating Ltd in the United Kingdom only, for their efforts in the design/production of millimeter wave antenna products to meet Aerojet requirements. Design and cost information, and any resultant hardware manufactured by Thomas Keating Ltd is to be provided to Aerojet in the United States.

**ARTICLE V.** In accordance with ITAR 22 CFR Section 124.8

1. This agreement shall not be entered into force, and shall not be amended or extended, without the prior written approval of the Department of State of the United States Government.
2. This agreement is subject to all United States laws and regulations relating to exports and to all administrative acts of the U.S. Government pursuant to such laws and regulations.
3. The parties to this agreement agree that the obligations contained in this agreement shall not affect the performance of any obligations created by prior contracts or subcontracts, which the parties may have individually or collectively with the U.S. Government.
4. No liability will be incurred by or attributed to the U.S. Government in connection with any possible infringement of privately owned patent or proprietary rights, either domestic or foreign, by reason of the U.S. Government's approval of this agreement.
5. The technical data or defense service exported from the United States in furtherance of this agreement and any defense article which may be produced or manufactured from such technical data or defense service may not be transferred to a person of a third country or to a national of a third country except as specifically authorized in this agreement unless the prior written approval of the Department of State has been obtained.

6. All provisions in this agreement which refer to the United States Government and the Department of State will remain binding on the parties after the termination of the agreement.

IN WITNESS WHEREOF,

**THOMAS KEATING LTD**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed Name/Title)

Date: \_\_\_\_\_

**AEROJET CORPORATION**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed Name/Title)

Date: \_\_\_\_\_

**GENCORP INC.**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Typed Name/Title)

Date: \_\_\_\_\_

**ATTACHMENT  
TAA AG # (TBD)  
AEROJET – THOMAS KEATING LTD (UNITED KINGDOM)**

**TECHNICAL ASSISTANCE AGREEMENT  
STATEMENT OF WORK**

**MILLIMETER WAVE RADIOMETER ANTENNA  
COMPONENTS**

**for the**

**ADVANCED TECHNOLOGY MICROWAVE  
SOUNDER (ATMS)**

**ATTACHMENT  
TAA AG # (TBD)  
AEROJET – THOMAS KEATING LTD (UNITED KINGDOM)**

**1.0 Objective**

Aerojet is interested in Thomas Keating Ltd. as a potential subcontractor/vendor for Millimeter Wave Radiometer Antenna Components. More specifically, Thomas Keating Ltd., will use their existing engineering knowledge and fabrication techniques for the generation of development plans, design details, design analyses, requirement validation, fabrication of development/flight hardware, hardware testing, testing results and performance analyses on freestanding wire polarizing grids, waveguide frequency diplexers, and corrugated conical feedhorns. Resulting design information and hardware from Thomas Keating Ltd. will potentially be used in the NASA Advanced Technology Microwave Sounder (ATMS) program.

**2.0 Scope**

Aerojet will provide Thomas Keating Ltd. with Statement(s) of Work, Specification(s) and applicable Drawings (updated to latest configurations/revisions as may be required) for current and follow-on contracts. Aerojet will participate in various discussions, interchanges and reviews with Thomas Keating Ltd.

Thomas Keating Ltd., utilizing their design, analysis, and fabrication techniques in the area of millimeter wave radiometer antenna components, will provide Aerojet design details, requirements validation, test results, performance analyses, and physical hardware.

In addition to providing requirements criteria (SoW, Specifications, Drawings) technical interface/exchange, is expected throughout the development and production phases, to include the following:

- Clarification/validation of design specifications
- Parabolic reflector dimensions (as applicable for feedhorn design)
- Component operating frequencies/bandwidths
- Component envelope dimensions
- Component interface definitions
- Component structural/thermal/mass requirements
- Component EMI/RFI requirements
- Diplexer insertion loss/isolation requirements
- Diplexer/feedhorn VSWR requirements
- Feedhorn illumination taper requirements
- Documented test results and recommendations

**ATTACHMENT**  
**TAA AG # (TBD)**  
**AEROJET – THOMAS KEATING LTD (UNITED KINGDOM)**

The technical interface will be in the form of informal discussions, formal Preliminary Design Reviews (PDRs), and Critical Design Reviews (CDRs) as may be required, in order to qualify Thomas Keating Ltd. as a producer of these products.

Technical exchanges will occur in the United Kingdom and/or the United States via facility visits and meetings, video-conference, telephone, facsimile, mail, encrypted electronic mail, or courier service.

**PRODUCT DRAWINGS**

**APPLICABLE TO**

**MILLIMETER WAVE RADIOMETER ANTENNA  
COMPONENT DESIGN, ANALYSIS, AND  
FABRICATION**

**FOR THE**

**ADVANCED TECHNOLOGY MICROWAVE  
SOUNDER (ATMS)**

**Contents:**

<b>1363053</b>	<b>G Band Diplexer</b>
<b>1362122</b>	<b>G Band Feedhorn</b>
<b>1362336</b>	<b>K/KA and V Band Polarizing Grid</b>
<b>1362337</b>	<b>G and W Band Polarizing Grid</b>











To: Odell Young <oyoung@pop200.gsfc.nasa.gov>  
From: Peter Krueger <pkrueger@mail.hq.nasa.gov>  
Subject: Aerojet Case 470-01  
Cc:  
Bcc:

Odell,

I am mailing the following case to you for staffing to the NPOESS office. I have not copied all the specification documents that came with the case as they are too extensive.

Aerojet is interested in Thomas Keating Ltd. of UK as a potential subcontractor/vendor to supply Millimeter Wave Radiometer antenna components. The items are a G Band Diplexer and Feed Horn, K/KA and V Band Polarizing Grid, and Gand W Band Polarizing Grid. These components are for the Advanced Technology Microwave Sounder (ATMS), a NASA instrument on the tri-service NPOESS program. The scope of the export entails technical data (statements of work, specifications and drawings) as well as technical interfaces/services throughout the development and production phases. The agreement is valid through Dec. 2012.

Please have the program office review the export and submit their comments.  
Thanks, Peter K.